Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Promoting Investment in the 3550-3700 MHz Band	)	GN Docket No. 17-258
	)	

To: The Commission

COMMENTS OF THE BLOOSTON RURAL CARRIERS

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Summary

The Blooston Rural Carriers urge the Commission to safeguard the ability of small and rural carriers to obtain 3.5 GHz Priority Access Licenses (PALs) when making modifications to the licensing rules for the 3.5 GHz Citizens Broadband Radio Service (CBRS). The Commission can best promote investment and maximize opportunities for both large and small service providers by adopting county-based licensing for five (5) of the PALs and retaining census block licensing for two (2) PALs, and retaining a significant amount of dedicated GAA spectrum to create and enhance opportunities for all operators. With respect to PAL license term and renewability, the Blooston Rural Carriers support five-year initial license terms, and allowing PAL applicants to apply for two consecutive terms during the first application window, if desired, for a total of ten years. License terms thereafter (when the service has matured) can be five year terms that are coupled with a renewal expectancy.

Rather than making significant changes to the 3.5 GHz CBRS to facilitate large-scale 5G deployments by nationwide carriers, the Blooston Rural Carriers believe the 500 megahertz of repurposed C-Band satellite spectrum at 3.7-4.2 GHz is a more suitable mid-range spectrum band to accommodate the more traditional wide-area and exclusive use licensing model that T-Mobile and CTIA are seeking. Maintaining smaller geographic license areas and shorter license terms for 3.5 GHz PALs will help ensure that the CBRS remains an "innovation band" that promotes investment and meaningful opportunities for all types and sizes of businesses.

TABLE OF CONTENTS

Summary ..... **ii**

Discussion **2**

I. The Commission Should Make Modest Changes to its Tiered Access Licensing Framework for CBRS **3**

II. The Commission Should License Five of the PALs on the Basis of Counties Rather than PEAs, and it Should Retain Census Block Licensing for the Remaining PALs **5**

III. The Commission Must Retain a Significant Amount of GAA Spectrum to Create and Enhance Opportunities for All Operators **7**

IV. License Term and Renewability **9**

V. Secondary Markets **11**

CONCLUSION **12**

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In 2015, the FCC unanimously adopted rules for the Citizen's Broadband Radio Service (CBRS), and in so doing created an innovative tiered structure to accommodate a variety of commercial services on a shared basis, while at the same time protecting incumbent federal and non-federal users of the band. In response to recent Petitions for Rulemaking filed by CTIA and T-Mobile USA, Inc. ("T-Mobile"), the FCC now seeks comment on several proposed changes to its rules governing Priority Access Licenses (PALs) that will be issued in the 3550-3700 MHz band (3.5 GHz Band).

The Blooston Rural Carriers, by their counsel, urge the Commission to safeguard the ability of small and rural carriers to obtain 3.5 GHz spectrum, in making any modifications to the current licensing rules for the 3.5 GHz Band. These rules which were designed to promote investment, and maximize opportunities for disseminating PALs among a wide variety of applicants. To the extent that the Commission decides to expand the PAL license size, it should license a portion of the PALs on the basis of counties rather than PEAs, and retain census block licensing for the remaining PALs. It should also retain significant opportunities for GAA spectrum use in conjunction with PALs, and in a separate portion of the 3.5 GHz band, to provide additional shared-use capacity. With respect to license term and renewability, the Blooston Rural Carriers support a modification to the current license term and renewal

framework for PALs that would allow for five-year initial license terms, and allowing PAL applicants to apply for two consecutive terms during the first application window, if desired, for a total of ten years.

If the Commission's long-term 5G policy goals contemplate supplementing the spectrum available to nationwide carriers, it should not do so with the 3.5 GHz CBRS band. Instead, this is best done with repurposed C-Band satellite spectrum (in the 3.7-4.2 GHz band).[1] The 500 megahertz of spectrum available in this portion of the mid-band is far more appropriate for the more "traditional" wide-area and exclusive use licensing model that CTIA and T-Mobile are seeking, as a way to facilitate large scale 5G operations. Longer-term renewable licenses are likely to generate significant auction revenues that will be needed to facilitate relocation of 3.7 – 4.2 GHz C-Band incumbents. The Blooston Rural Carriers urge the Commission to preserve a realistic likelihood of spectrum-based opportunities for small and rural service providers and new market entrants in the 3.5 GHz band, and to refrain from changes that would unduly favor nationwide incumbents.

DISCUSSION

The Blooston Rural Carriers are a diverse group of Tier III Commercial Mobile Radio Service ("CMRS") providers and fixed wireless broadband service providers that are dedicated to providing high-quality, advanced wireless services in the smaller communities and sparsely populated expanses of rural America. Most are subsidiaries or affiliates of privately-held rural telephone companies or community-owned rural telephone cooperatives that are also eligible small businesses under the Commission's Rules, and all are committed to meeting the needs of

[1] Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183, *Notice of Inquiry*, FCC 17-104 (*Mid-Band NOI*) at Paras. 13-23; *see also* O'Rielly, M., "A Mid-Band Spectrum Win in the Making" FCC Blog, July 10, 2017, https://www.fcc.gov/news-events/blog/2017/07/10/mid-band-spectrum-win-making (*accessed* December 18, 2017).

consumers and businesses in the communities they serve.

I. The Commission Should Make Modest Changes to its Tiered Access Licensing Framework for CBRS

The Commission should refrain from adopting geographic areas as large as PEAs for licensing of 3.5 GHz PALs. Petitioners have argued that PEA licensing would be "consistent with the geographic licensing area that the Commission has already identified as best for 5G operations" in the Spectrum Frontiers proceeding. While PEAs were adopted for 39 GHz geographic licensing (since incumbent 39 GHz licenses were issued for EAs), the Commission never concluded that PEAs were categorically the "best" geographic licensing area for all 5G operations. Indeed, in the very same Spectrum Frontiers proceeding, the Commission concluded that county-based licensing was the most appropriate for Upper Microwave Flexible Use Service (UMFUS) licenses in the 28 GHz band. The Commission explained that "a county-based license affords a licensee the flexibility to develop localized services, allows for targeted deployments based on market forces and customer demand, and facilitates access by both smaller and larger carriers." The Blooston Rural Carriers believe a reasonable mix of county and census tract licensing of 3.5 GHz PALs would better promote all of these policy objectives, while at the same time fulfilling the Commission's obligations under Section 309(j) of the Communications Act, and reducing burdens on carriers that wish to secure PALs over larger geographic areas.

The existing CBRS rules were designed to promote investment and maximize opportunities in the 3.5 GHz Band by disseminating PALs among a wide variety of applicants,[2] as well as ensuring the efficient and intensive use of electromagnetic spectrum.[3] With that said,

[2] See 47 U.S.C. § 309(j)(3)(B) (setting goals of "avoiding excessive concentration of licenses" and "disseminating licenses among a wide variety of applicants . . .")

[3] *Id.* § 309(j)(3)(C).

the Blooston Rural Carriers believe there is room to simplify 3.5 GHz PAL licensing for both small and large service providers while ensuring intensive use of the 3.5 GHz PALs, by licensing five (5) of the PALs on a county-basis, and retaining census-block licensing for two (2) PALs.

County-based PALs make sense for a number of reasons. Aside from being suited for a wide variety of business models (including 4G LTE and/or 5G services), county-based licensing would make it easier for small businesses and new market entrants to provide wide-area PAL service without the risk of losing access to PAL spectrum in one or more strategic census blocks. County-based PAL licensing would significantly reduce the administrative complexity of dealing with dozens, if not hundreds or thousands of census-block licenses that may be needed to provide PAL service over a larger area. At the same time, using geographic areas that are smaller than the PEAs will only place a modest administrative burden on larger carriers. County-based license areas will help to ensure that PALs in rural areas are available for businesses that seek to deploy PAL services in rural communities. It is worth noting that counties "nest" into all of the FCC's larger geographic service areas, and this will allow operators to secure PAL rights corresponding exactly to their existing service areas, and help to ensure that PAL rights in rural counties are not tied up in a larger geographic area license, where the underlying licensee may not have immediate plans (or any plans) to offer PAL services to rural communities.[4]

Contrary to concerns expressed on in the petitions for rule making, county-based PALs will not prevent deep-pocketed nationwide wireless carriers from acquiring and aggregating the PALs they need to deploy small cell networks over larger areas, as desired. Nationwide service providers have access to extraordinary resources and personnel, and will be in a position to

[4] While counties are the building block common to nearly every auction license size, the Blooston Rural Carriers would not object to the use of other reasonable license configurations that would foster a realistic opportunity for rural participation, such as Cellular Market Areas (CMAs).

develop IT systems needed to manage spectrum rights based on county-sized license areas. Moreover, in areas where operators aren't successful in acquiring the PALs that they need at auction, or in areas where operators later decide they need access to PALs, the Commission's existing Part 96 rules provide secondary market mechanisms that allow Priority Access Licensees to transfer or assign their licenses, or to enter into de facto leasing arrangements.[5] There is no evidence in the record that suggests nationwide carriers have any difficulty acquiring the spectrum resources they need in the secondary market. Combined with the continued use of census block licensing areas for two (2) PALs, these secondary market rules make PAL spectrum use rights available on a targeted and flexible basis.[6] Most importantly, small, rural and niche service providers will not be foreclosed from access to PALs because nationwide carriers have been able to dominate bidding for much larger geographic areas that only they can afford.

II. The Commission Should License Five of the PALs on the Basis of Counties Rather than PEAs, and it Should Retain Census Block Licensing for the Remaining PALs.

The combination of small license areas, short license terms and spectrum access managed by the SAS will help ensure that spectrum is used intensively and licensed efficiently to those entities that not only value the spectrum most highly, but it will also favor those entities that are prepared to deploy their facilities and services the most quickly in targeted areas or groups of areas. These entities could be rural telephone carriers, as well as local businesses or private entities (*e.g.,* convention centers or stadiums) that are in the best position to facilitate rapid and efficient deployments in and around their facilities using a "neutral host" business model. Small and rural area PAL licensees will have opportunities to serve end users directly, to make wholesale 4G and 5G services available to other carriers and their customers (through a shared-

5 *See* 47 C.F.R. §96.32 (a).

6 *Second Report and Order*, 31 FCC Rcd at 5077, para. 228.

use neutral host model), and to provide network support and backhaul services to private businesses that may wish to obtain PALs to self-provision critical internal-use operations. Licensing PALs on a larger service area basis will preclude potentially significant opportunities for small service providers and private spectrum users to participate in newer spectrum-based services.

If the Commission retains two license blocks for very small service area licenses (such as census tracts), the potential for 5G innovation to be spurred by thousands of new entrepreneurs and spectrum users will be preserved. Compared to other licensed bands that are currently planned or on the drawing board for 5G, specifically the bands above 24 GHz (*e.g.*, the 24 GHz Band and the 47 GHz Band, which the Commission recently determined it should license on the basis of PEAs),[7] the 3.5 GHz band is the only licensed spectrum band that holds significant promise for entrepreneurs, small businesses and rural service providers. Smaller licensees are well positioned to deploy 3.5 GHz band services to the public as quickly as possible. Unlike nationwide commercial carriers seeking to deploy 4G macro networks, smaller entities are often not hampered by the need to obtain third-party siting approvals, but instead can deploy small cells on their own premises. Moreover, the deployment of shared use facilities by such entities will help service providers to extend small cell coverage and 5G services into more areas quickly and at a much lower capital expense, allowing larger carriers to focus their capital and expertise on larger outdoor deployments. Promoting a diversity of "carriers" will help commercial service providers to manage traffic on their macro networks, just as they do through using a mix of public and private Wi-Fi networks for calls and to offload data traffic. It is not realistic to think

[7] *See* In the Matter of Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, *Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order*, GN Docket No. 14-177 ("*Spectrum Frontiers Second R&O*").

that a single PAL licensee over a PEA-sized license area will be able to deploy the facilities needed to serve all of these diverse and often competing use cases. Insisting on PEA-sized licenses may also allow large carriers to stifle competition for PAL services.

The tremendous diversity of use cases, broad range of potential 3.5 GHz PAL operators and likelihood of significant and ongoing investment should not be foreclosed by defaulting to the standard auction approach that requires significant upfront investment and that overwhelmingly favors nationwide incumbent wireless carriers to the exclusion of others. Retaining two census block-sized PALs will help ensure that the CBRS remains an "innovation band" that promotes meaningful opportunities for all types and sizes of businesses. It also leverages the unique technical characteristics of small cells to promote a high degree of spectral and spatial reuse while facilitating flexible, targeted deployment of CBSDs.

If the Commission decides nonetheless to utilize PEA-sized license areas, it should limit PEA licensing to a subset of larger markets, such as the Top 40 PEAs (a dividing line it found significant for purposes of the 600 MHz forward auction) and utilize county-based licensing for smaller PEAs as a way to ensure that the maximum amount of 3.5 GHz band spectrum remains available for bidding by small businesses, rural telephone companies, and new market entrants.

III. The Commission Must Retain a Significant Amount of GAA Spectrum to Create and Enhance Opportunities for All Operators

Along with ensuring that 3.5 GHz band PAL spectrum is licensed using smaller geographic areas, the Commission can create and enhance the ability for operators of all sizes to compete by retaining its tiered access framework for the CBRS, including a significant amount of shared GAA spectrum that will be available to all operators. The efficient spectrum management model that the Commission developed when it adopted the CBRS rules in 2015 is

dependent upon reserving a good portion of the 3.5 GHz band for shared use, and this also facilitates sharing of the band with incumbent users. The Commission should therefore reject T-Mobile's request to designate the entire 3.5 GHz band for PAL use, and it should retain at least 80 megahertz of GAA spectrum, when not in use by incumbents.

In its Petition, T-Mobile argues that 5G technologies are expected to operate using 40 – 50 megahertz channels, and the current 70 megahertz per market of PAL spectrum will likely only support a single licensed provider offering 5G in each market. As a result, it claims that this will limit incentives to invest and inhibit technological growth.[8] However, this argument disregards the fact that 5G services, such as large-scale IOT deployments, will utilize tens of thousands of low cost sensors, but will not require a large amount of bandwidth. Moreover, while expanding to a band plan with fifteen (15) PAL channels may suit T-Mobile's druthers, this band plan does not appear to be feasible in light of the need to protect incumbent operations (*e.g.*, US military radar systems, Fixed Satellite Stations and grandfathered 3.65 GHz operations) from interference. It also assumes that PAL licensees won't be able to provide 5G services by combining their PAL holdings with access to shared GAA spectrum, or through access to significant capacity offered by unlicensed spectrum bands. In this regard, modern LTE systems are currently able to make use of a new technology called License Assisted Access (or "LAA") to offload increasing cellular traffic to unlicensed bands. T-Mobile has recently published a blog post[9] highlighting the company's success in demonstrating speeds exceeding 1 Gbps using 12-layer LAA technology, and it acknowledges that "the use of these LTE technologies on unlicensed spectrum complements licensed spectrum and makes it possible for a larger number

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[8] T-Mobile Petition at p. 9.

[9] *See* "T-Mobile, Ericsson exceed 1 Gbps with LAA demo" at https://newsroom.t-mobile.com/news-and-blogs/tmobile-ericsson.htm (accessed Dec. 27, 2017).

of operators to reach gigabit speeds in their networks."

The Blooston Rural Carriers applaud T-Mobile and its technology partners for their pioneering work with technologies like LAA. Maintaining the current 80 megahertz of shared GAA spectrum will not only mean that opportunities for GAA operators will be available in all areas, but it will ensure opportunities for multiple PAL licensees to access additional bandwidth through bonding of PAL spectrum with GAA capacity, and/or unlicensed spectrum resources, that may be available at a given location at any particular time. The current CBRS band plan and licensing policies and rules will encourage the use and development of exciting new technologies like LAA. To the extent that wider channels of contiguous exclusive-use spectrum are needed for mid-band 5G services, the Commission should expedite its clearing of the 3.7 – 4.2 GHz C-Band as proposed in the Mid-Band proceeding by Intelsat and Intel Corporation.[10]

IV. License Term and Renewability

In its *3.5 GHz Order on Reconsideration and Second Report and Order*, the Commission affirmed its decision from the *3.5 GHz R&O* to issue PALs with three-year non-renewable license terms.[11] This three-year term represented a compromise between the WISP industry, which advocated for short license terms, and the commercial wireless industry, whose members preferred longer license terms. The Commission further mitigated the risk of stranded investment by allowing PAL applicants to apply for two consecutive terms during the first application window, if desired, for a total of six years.

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[10] *See* Joint Comments of Intelsat License, LLC and Intel Corporation, GN Docket No. 17-183 (*Intelsat/Intel Mid-Band Comments*") *filed* October 2, 2017.

[11] *3.5 GHz Order on Reconsideration and Second Report and Order*, 31 FCC Rcd 5011 at 5021, para. 43.

However, with the 3.5 GHz band emerging as one of the core mid-range bands for 5G network deployments throughout the world, T-Mobile and the commercial wireless industry are now urging the Commission to license 3.5 GHz PALs with a ten-year license term, and to include an expectation of renewal.[12] Coupled with the proposal to license PALs on the basis of PEAs, it would turn the CBRS "innovation band" – one of the few remaining bands where the Blooston Rural Carriers and other small and independent operators could reliably secure access – into yet another expensive set of auction licenses dominated by a handful of nationwide incumbents. This dynamic was seen in the AWS-3 auction, where small and rural carriers were the most numerous bidders but were foreclosed from meaningful opportunities.[13]

Shorter license terms will reduce the cost of licenses and barriers to entry to small companies and new market entrants. In addition to reducing upfront costs, relatively short license terms will also lead to efficient use of a scarce resource by encouraging licensees to acquire PALs only those geographic areas where they are ready, willing and able to deploy service in the near term.

At the same time, the Blooston Rural Carriers understand that service providers may be reluctant to make significant investment in 3.5 GHz PALs for wide area 5G networks without the assurance they will be able to recoup their initial investment. The Blooston Rural Carriers would therefore support a modification to the current license term and renewal framework for PALs that would allow for five-year initial license terms, and allow PAL applicants to apply for two consecutive terms during the first application window, if desired, for a total of ten years. This would almost double the time that PAL licensees would have under the current CBRS licensing

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12 *See* CTIA Petition at 6-9; T-Mobile Petition at 11-13.

13 Insert CITE.

regime to establish service and operating standards in a new frequency band, as well as to obtain siting approvals for a large number of small cell deployments. License terms thereafter (when the service has matured) can be five year terms that are coupled with a renewal expectancy. Licensees will then have a better idea of the geographic areas where they will need to secure PALs, versus where it is unnecessary to secure PALs because they (and their customers) have access to shared-use PAL facilities. Coupled with a user's ability to switch between Priority Access and GAA use, this should provide sufficient incentives for larger carriers to invest in development of a new technology.

V. Secondary Markets

To the extent that the Commission adopts changes to the PAL license term, renewability, and geographic license area (*i.e.*, if PALs are larger than a county), the Blooston Rural Carriers believe it should allow PAL licensees to partition or disaggregate licenses on the secondary market. With a relatively limited amount of 3.5 GHz PAL spectrum available, neutral host facilities or cooperative lease arrangements (multiple licensees leasing their spectrum to a single operator) may prove to be the most efficient way for deploy 5G services in the CBRS band, especially in dense indoor user environments like arenas and conference centers. Small, low-power cells will allow for significant frequency re-use, and shared-use facilities operated pursuant to lease by a premises owner can be designed for optimal 5G network performance rather than having multiple 5G operators fighting head-to-head for access to a limited resource over a small area. A light-touch leasing process for isolated small cells or groups of small cells could be a useful tool to facilitate rapid deployment of 3.5 GHz networks (including 5G facilities) by entrepreneurs and businesses that negotiate operating arrangements with larger service area PAL license holders.

While secondary market transactions such as leases and partitioning/disaggregation could be a useful tool to ensure robust and targeted use of the spectrum throughout the license area, the Commission should not view secondary market transactions as a replacement for licensing smaller geographic areas in the first instance and shorter-term PALs that are accessible to a variety of users. As with other licensed spectrum bands, there is no guarantee that licensees of large areas will make their unused spectrum available to unaffiliated third parties on the secondary market.

CONCLUSION

The Commission must not let itself be swayed by arguments raised by T-Mobile and CTIA suggesting that America's potential for leadership in the global race to 5G is dependent on rewriting the rules for the 3.5 GHz CBRS and turning the service into another opportunity uniquely designed for their favored business model. One only has to look as far as unlicensed wireless technologies to see that other models can unleash widespread investment and innovation.

Unlicensed wireless technologies like Wi-Fi and Bluetooth, which rely on a small amount of shared use spectrum, have been an unparalleled success for the wireless industry, to the point of becoming an indispensable part of our daily lives. The primary reasons for this success are strong and always-evolving global standards which drive economies of scale, promote interoperability, and reduce risk so that businesses of all sizes are comfortable investing in the technology. This leads to extremely low cost network and end-user equipment, as well as a continuous stream of innovative products and services, and expands the reach of the technology far beyond the scope of any single commercial service provider or the "Big Four" combined.

The Commission's 3.5 GHz rules should promote cooperation between and provide spectrum opportunities for multiple levels of network operators, including those best suited to make investments necessary to deploy services in large urban markets, those that are focused on rural areas, those serving as neutral hosts. A combination of county and census block-sized licenses, and the availability of GAA spectrum, will contribute to this outcome.

Respectfully submitted,

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Blooston Rural Carriers

Choctaw Telephone Co. ..... Halltown, MO
Electra Telephone Co. ..... Electra, TX
Haxtun Telephone Co. ..... Haxtun, CO
Lincoln County Telephone System, Inc. ..... Pioche, NV
Midstate Communications ..... Kimble, SD
MoKan Dial, Inc. ..... Louisburg, KS
Moultrie Independent Telephone Company ..... Lovington, IL
Northeast Florida Telephone ..... Macclenny, FL
Nucla-Naturita Telephone Co. ..... Nucla, CO
Ponderosa Telephone Company ..... O'Neals, CA
Pymatuning Independent Telephone Company ..... Greenville, PA
Shawnee Telephone Co., Inc. ..... Equality, IL
Table Top Telephone Co., Inc. ..... Ajo, AZ
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